

SOV/78-3-11-4/23

The Determination of the Solubility Products of Silver Citrate at Different Ionic Strength of the Solution

The thermodynamic value of the solubility product of silver citrate was determined for solutions with an ionic strength of 0,002 - 0,103. In the case of an ionic strength of 0,002 of the solution the solubility of $\text{Ag}_3\text{C}_6\text{H}_5\text{O}_7$ amounts to $3,4 \cdot 10^{-4}$ g-mol/l and the solubility product $k^{\circ} = (3,3 \pm 0,1) \cdot 10^{-13}$. In the case of an ionic strength of 0,103 of the solution the solubility amounts to $5,5 \cdot 10^{-4}$ g-mol/l and $k^{\circ} = (2,4 \pm 0,3) \cdot 10^{-12}$. These results show that the solubility product changes by almost the tenfold with the change of the ionic strength of the solution of 0,002 - 0,103. Figure 1 shows the dependence of the negative logarithm of the solubility products of silver nitrate (pK) on the ionic strength of the solution.

There are 1 figure, 2 tables, and 4 references, 1 of which is Soviet.

SUBMITTED: April 10, 1957

Card 2/2

MORACHEVSKAYA, M.D.; ZLOBIN, V.S.; PTITSYN, B.V.

Adsorption of strontium on hydroxylapatite crystals [with summary
in English]. Biokhimiia 23 no.4:564-567 Jl-Ag '58. (MIRA 12:3)

1. The Technological Institute of Food Industry, High School Ministry
of the U.S.S.R., Leningrad.

(GASTRIC JUICE,
radiostrontium, adsorption with hydroxyl-apatite
crystals (Rus))

(STRONIUM, radioactive,
in gastric juice, adsorption with hydroxyl-apatite
crystals (Rus))

DASHKEVICH, Leonid Borisovich, kand.khim.nauk; PTITSYN, B.V., prof.,
nauchnyy red.; VOROB'YEV, G.S., red.izd-va; GURDZHIYEVA, A.M.,
tekhn.red.

[Progress in radiochemistry] Uspekhi radiatsionnoi khimii.
Leningrad. Ob-vo po rasprostraneniu polit. i nauchn.znanii
RSFSR, Leningr. otd-nie, 1959. 31 p. (MIRA 12:9)
(Radiochemistry)

SOV/78-4-2-20/40

5(2)
AUTHORS:

Sheronov, L. N., Ptitsyn, B. V.

TITLE:

On a Citrate Complex of Zirconium (O kompleksnom tsitrate
tsirkoniya)

PERIODICAL:

Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 2,
pp 367-371 (USSR)

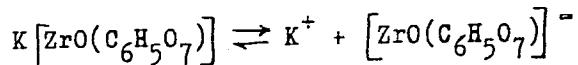
ABSTRACT:

Upon the interaction of 1 mole zirconium carbonate with 1.5 moles citric acid, which is semi-saturated with KOH, a complex potassium zirconyl citrate of the composition $K[ZrO(C_6H_5O_7)] \cdot 2.5H_2O$ is formed. The complex $K_3C_6H_5O_7 \cdot ZrC_6H_4O_7 \cdot 9.5H_2O$ described by Mandl (Ref 1) is not formed under these production conditions. In order to determine the coordination formula of the compound obtained the molecular electric conductivity and the molecular weight of this compound were determined. The molecular weight of potassium zirconyl citrate in aqueous solution shows values from 175-195. The molecular weight and the molecular electric conductivity show that, in aqueous solution, the compound dissociates into two ions:

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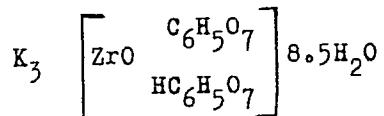
SOV/78-4-2-20/40

On a Citrate Complex of Zirconium



The aqueous solution of the compound is weakly acid. For the potassium zirconyl citrate complex produced by Mandl the following formula was suggested: $K \left[\text{ZrO}(\text{C}_6\text{H}_5\text{O}_7) \right] \cdot K_2 \text{HC}_6\text{H}_5\text{O}_7 \cdot 8.5 \text{H}_2\text{O}$

and the following coordination formula:



There are 2 tables and 6 references, 2 of which are Soviet.

SUBMITTED: December 12, 1957

Card 2/2

5(4),21(1)

AUTHORS:

Tekster, Ye. N., Vinogradova, L. I., SOV/78-4-4-10/44
Ptitsyn, B. V.

TITLE:

The Determination of the Stability Constants of the Complex Oxalates of Magnesium and Uranyl Using an Oxalate-silver Electrode (Opredeleniye konstant nestoykosti kompleksnykh oksalatov magniya i uranila s pomoshch'yu oksalatno-serebryano-go elektroda)

PERIODICAL:

Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 4, pp 764-768
(USSR)

ABSTRACT:

The stability constants of the complexes $K_2[Mg(C_2O_4)_2]$ and $K_6[(UO_2)_2(C_2O_4)_5]$ were determined using an oxalate-silver electrode. Solutions of various concentrations of both complexes were saturated with silver oxalate at 25°, and the potential of the oxalate-silver electrode was measured in these solutions in order to determine the equilibrium activity of the $C_2O_4^{2-}$ ion. The results of these measurements are given in a table. The integral stability constant for the magnesium complex $K_2[Mg(C_2O_4)_2]$ was calculated:

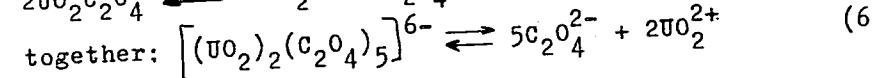
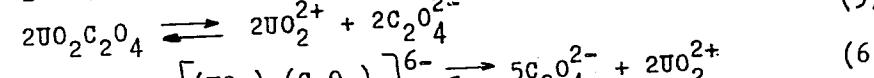
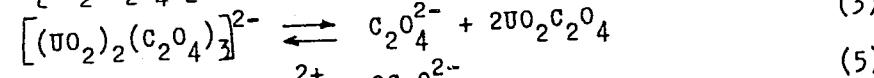
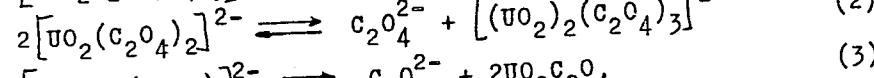
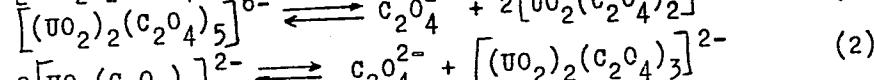
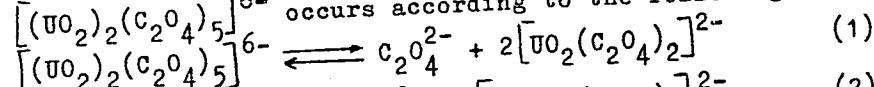
Card 1/4

The Determination of the Stability Constants of the SOV/78-4-4-10/44
 Complex Oxalates of Magnesium and Uranyl Using an Oxalate-silver Electrode

I (ion strength)	$K_2[\text{Mg}(\text{C}_2\text{O}_4)_2]$	K_{integral}
$0.89 \cdot 10^{-1}$		$5.7 \cdot 10^{-5}$
$0.49 \cdot 10^{-1}$		$2.9 \cdot 10^{-5}$
$0.31 \cdot 10^{-1}$		$2.9 \cdot 10^{-5}$

The measured results required for the calculations are summarized in a table. The dissociation of the complex ion

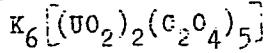
$[(\text{UO}_2)_2(\text{C}_2\text{O}_4)_5]^{6-}$ occurs according to the following scheme:



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The Determination of the Stability Constants of the SOV/73-4-4-10/44 Complex Oxalates of Magnesium and Uranyl Using an Oxalate-silver Electrode

It is assumed that the complex ion $[(\text{UO}_2)_2(\text{C}_2\text{O}_4)_4]^{4-}$ exists in the solution. The stability constants K_1 , K_2 and K_3 for $K_6[(\text{UO}_2)_2(\text{C}_2\text{O}_4)_5]$ were calculated as follows:



I (ion strength)	$K_1 \cdot K_2$	K_2
$0.69 \cdot 10^{-1}$	$3.8 \cdot 10^{-5}$..
$0.22 \cdot 10^{-1}$..	$4.8 \cdot 10^{-2}$
$0.08 \cdot 10^{-1}$..	3.0

The data required for the calculations are given in a table. A further table gives the results of the calculation of K_2 . There are 4 tables and 7 references, 3 of which are Soviet.

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The Determination of the Stability Constants of the SOV/78-4-4-10/44
Complex Oxalates of Magnesium and Uranyl Using an Oxalate-silver Electrode

ASSOCIATION: Kafedra obshchey i analiticheskoy khimii Leningradskogo
tekhnologicheskogo instituta pishchevoy promyshlennosti
(Chair of General and Analytical Chemistry of the Leningrad
Technological Institute of the Foodstuffs Industry) and
Kafedra tekhnologii iskusstvennykh radioaktivnykh veshchestv
Leningradskogo tekhnologicheskogo instituta im. Lensoveta
(Chair of the Technology of Artificial Radioactive Materials
of the Leningrad Technological Institute imeni Lensovet)

SUBMITTED: December 30, 1957

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SOV/78-4-10-13/40

5(2)
AUTHORS:Ptitsyn, B. V., Tekster, Ye. N.

TITLE:

Determination of the Instability Constant of Oxalate Complexes of Uranyl by Means of the Method of the Shifted Equilibrium

PERIODICAL:

Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 10,
pp 2248-2254 (USSR)

ABSTRACT:

On description of the solubility method used in the determination of instability constants it is disregarded that in several cases a displacement of the dissociation equilibrium of the complex ion may take place brought about by reaction of a ion situated in the inner sphere of the complex with a ion in the outer sphere. In such cases the equilibrium can be approached from two sides and the thermodynamic equilibration be proved. In the following the equilibrium of the reaction

$$\left[\text{UO}_2(\text{C}_2\text{O}_4)_y \right]^{2-2y} + 2x\text{Ag}^+ \rightleftharpoons \left[\text{UO}_2(\text{C}_2\text{O}_4)_{y-x} \right]^{2-2(x-y)} + x\text{Ag}_2\text{C}_2\text{O}_4$$

is investigated. The approach to the equilibrium from the left of the equation is denoted as first modification, the approach from the right as second modification of the method of the shifted equilibrium. The equilibria of the following systems

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Determination of the Instability Constant of Oxalate Complexes of Uranyl by
Means of the Method of the Shifted Equilibrium

were investigated: $K_2 \left[\text{UO}_2(\text{C}_2\text{O}_4)_2 \right] + \text{AgNO}_3$ at an initial molar ratio between silver and uranyl ion of 2 and 4; and $K_6 \left[(\text{UO}_2)_2(\text{C}_2\text{O}_4)_5 \right] + \text{AgNO}_3$ at an ionic ratio of 1, 3, and 5. The equilibrium distribution of silver ions between the solid and liquid phase at 25° was determined. The results are illustrated in the coordinate system $p[\text{Ag}^+]$, $f(p_{\text{UO}_2^{2+}})$ in figure 1.

Tables 1 and 2 give the computed values of the instability constants K_I and K_{II} . Figures 2 and 3 show the dependence of the constants on \sqrt{J} (J = ionic strength). For $K_I 8.3 \cdot 10^{-6}$ was found by means of the first modification, $3.6 \cdot 10^{-5}$ by means of the second modification; for K_{II} by means of both modifications $1.0 \cdot 10^{-6}$ in accordance. The value of K_I obtained by means of the second modification is considered the more likely one. The reasons for it shall be given in a later paper. There are 3 figures, 2 tables, and 5 references, 3 of which are Soviet.

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Determination of the Instability Constant of Oxalate Complexes of Uranyl by
Means of the Method of the Shifted Equilibrium

ASSOCIATION: Leningradskiy tekhnologicheskiy institut im. Lensoveta
(Leningrad Technological Institute imeni Lensoveta)
Tekhnologicheskiy institut pishchevoy promyshlennosti
(Technological Institute of Food Industry)

SUBMITTED: July 11, 1958

Card 3/3

MORACHEVSKAYA, M.D.; PTITSYN, B.V.

Determination of iodides in the presence of bromides and chlorides
by means of radioactive iodine. Zav.lab. 26 no.3:269-271 '60.
(MIRA 13:6)

1. Leningradskiy tekhnologicheskiy institut pishchevoy promyshlennosti.
(Iodides) (Iodine--Isotopes)

S/079/60/030/007/021/039/XX
B001/B066

AUTHORS:

Alekseyeva, I. P., Pesotskaya, V. M., and Ptitsyn, B. V.

TITLE:

Oxidation Potential of Permanganate

PERIODICAL:

Zhurnal obshchey khimii, 1960, Vol. 30, No. 7, pp. 2104-2108

TEXT: The purpose of this work was a more exact characterization of the oxidizing effect of permanganate. Its oxidizing effect depends on the acidity of the solution, but research workers disagree in this respect. The investigation of the dependence of the potential of the permanganate solution on pH is of interest since the reduced form which is in equilibrium with the permanganate ion may be determined from the potential as a function of the percentual content. In an acid solution, the latter may be in equilibrium with some of its reduction products, except compounds of bivalent manganese, as potassium permanganate oxidizes the Mn⁺⁺ at any percentual content. Therefore, the universal equation

$$E = 1510 + \frac{59.1}{5} \lg \frac{[MnO_4^-]^4}{[Mn^{++}]^8}$$

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Oxidation Potential of Permanganate

S/079/60/030/007/021/039/XX
B001/B066

cannot be used to characterize the oxidation properties of permanganate. To study these states of equilibrium different methods were applied (Refs. 3-5,6,7). B. V. Ptitsyn and V. F. Petrov (Ref. 8) indicated that also in the case of bichromate solution the oxidation potential may be affected by the nature of the acid. This might also apply to permanganate. The present paper deals with the following problems: 1) Quantitative determination of the oxidation potential of the permanganate solution as dependent on the pH of the medium. 2) The question as to whether the nature of the acid influences the potential. 3) A more exact characterization of the states of equilibrium established in the permanganate solution under the conditions of the experiments to be performed. The authors investigated the dependence of a potassium permanganate solution (0.01 mole) in solutions of HClO_4 , HNO_3 , H_2SO_4 , CH_3COOH . The effect depends on the nature of the acid at low pH only. An attempt was made to interpret the nature of the reduced forms which are in equilibrium with the permanganate ion, on the basis of the functions of the permanganate solution potential on pH in solutions of different acids. Table 1 gives the data of the potential dependence of KMnO_4 dissolved in HClO_3 and Table 2 the values

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Oxidation Potential of Permanganate

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B001/B066

$\Delta E/\Delta pH$ for various redox systems. The diagram illustrates the oxidation potential of potassium permanganate as dependent on pH in the presence of different acids. For the oxidation potential of permanganate in $HClO_4$ and HNO_3 , E was found to be 1600 mv, in H_2SO_4 : $E = 1650$ mv. There are 1 figure, 2 tables, and 9 references: 4 Soviet, 4 US, and 1 Spanish.

ASSOCIATION: Leningradskiy tekhnologicheskiy institut pishchevoy promyshlennosti (Leningrad Technological Institute of the Alimentary Industry) ✓

SUBMITTED: July 6, 1959

Card 3/3

PTITSYN, B.V.; SHURHOV, L.N.

Complex nichium oxalate. Izv. Sib. otd. Ak. SSSR no.9:44-46 '61.
(MIRA 14:10)

1. Institut neorganicheskoy khimii Sibirskogo otdeleniya
AN SSSR, Novosibirsk.
(Niobium compounds)

PTITSYN, B.V.; SHERONOV, L.N.

Complex zirconium oxalate. Izv. Sib. otd. AN SSSR no. 10:80-
83 '61. (MIRA 14:12)

1. Institut neorganicheskoy khimii Sibirskogo otdeleniya
AN SSSR, Novosibirsk.
(Zirconium oxalates)

P'TITSYN, B.V.; VINOGRADOVA, L.I.; VASIL'YEVA, L.L.; Prinimala uchastiye:
LJKINYKH, N.L.

Use of a silver citrate electrode for the determination of
instability constants of complex citrates. Zhur.neorg.khim.
7 no.5:1009-1011 My '62. (MIRA 15:7)
(Citrates) (Silver compounds) (Electromotive force)

ALTYMOV, V.O.; PTITSYN, B.V.

Theory of the silver chloride electrode and the determination of complex chloride instability constants. Zhur.neorg.khim. 7 no.9:
2103-2109 S '62. (MIRA 15:9)

1. Institut neorganicheskoy khimii Sibirskogo otdeleniya AN SSSR.
(Electrodes) (Silver chloride) (Chlorides)

NOVOSELOV, A.I.; MUZYKANTOVA, Z.A.; PTITSYN, B.V.

Oxidation potential as a characteristic of the reaction
velocity in the kinetic methods of analysis. Zhur.neorg.khim.
8 no.1:135-140 Ja '63. (MIRA 16;5)

1. Institut neorganicheskoy khimii Sibirskogo otdeleniya
AN SSSR.

(Oxidation) (Chemical reaction, Rate of)
(Chemistry, Analytical)

ALTYNOV, V.I.; PTITSYN, B.V.

Theory of a lead chloride electrode. Zhur. neorg. khim. 9 no.10:
2407-2410 O '64. (MIFI 17:12)

1. Institut neorganicheskoy khimii Sibirs'kogo otdeleniya AN SSSR.

NIVOSELOV, R.I.; ZEMSKOV, S.V.; PTITSYN, B.V.

Oxidation of tetrammine platinum chloride by iodine. Dokl. AN SSSR 158
no. 5:1133-1135 O '64. (MIRA 17:10)

1. Institut neorganicheskoy khimi Sibirskogo otdeleniya AN SSSR. 2.
Chlen-korrespondent AN SSSR (for Ptitsyn).

ZEMSKOV, S.V.; PTITSYN, B.V. [deceased]

Oxidation of cis- and trans-isomers of bivalent platinum by
sodium vanadate. Zhur. neorg. khim. 10 no.6:1502-1503 Je '65.
(MIRA 18:6)

1. Institut neorganicheskoy khimii Sibirskogo otdeleniya AN SSSR.

NIKOLAEVA, N.M., FTITSYN, B.V. [deceased], PASTUKHOVA, Ye.D.

Hydrolysis of potassium chloroplatinate. Zhur. neorg. khim.
10 no.5:1058-1061 My '65. (MIRA 18:6)

I. Institut neorganicheskoy khimii Sibirskogo otdeleniya AN
SSSR.

NIKOLAEVA, N.M.; PETROV, B.V. [deceased]; GORBACHEVA, I.I.

Hydrolysis of potassium chloroplatinite. Zhur. neorg. khim.
10 no.5:1051-1057 My '65. (MIRA 18:6)

I. Institut neorganicheskoy khimii Sibirskogo otdeleniya
AN FSSR.

PTITSYN, B.V. [deceased]; SHERONOV, L.N.

Certain number of niobium complex compounds of relative stability.
Izv. SO AN SSSR no.3; Ser. khim. nauk no.1:68-71 '65.

(MIRA 18:8)

1. Institut neorganicheskoy khimii Sibirskego otdeleniya AN
SSSR, Novosibirsk.

ZEMSKOV, S.V.; PTITSYN, B.V.

Oxidation of the platinite series by sodium vanadate. Dokl. AN SSSR
160 no.2:343-345 Ja '65. (MIPA 18:2)

1. Institut neorganicheskoy khimii Sibirskogo otdeleniya AN SSSR.
2. Chlen-korrespondent AN SSSR (for Ptitsyn).

BELYAYEV, A.V.; KAZAKOV, V.P.; PTITSYN, B.V.

Certain features of the behavior of complex compounds of Rn (III)
in solution as linked with the compensation effect. Dokl. AN SSSR
160 no.1:149-150 Ja '65. (MERA 18:2)

1. Institut neorganicheskoy khimii Sibirsogo otdeleniya AN SSSR.
2. Chlen-korrespondent AN SSSR (for Ptitsyn).

NOVOSELOV, R.I.; MUZYKANTOVA, Z.A.; PTITSYN, B.V.

Complexes unstable with time. Zhur. neorg. khim. 9 no.11:2590-2593
N '64 (MIRA 18:1)

1. Institut neorganicheskoy khimii Sibirskogo otdeleniya AN SSSR.

PESHCHEVITSKIY, B.I.; PTITSYN, B.V.; LESKOVA, N.M.

Hydrolysis of chloroplatinite ion. Izv. Sib. otd. AN SSSR no. 11:
143-145 '62. (MIRA 17:9)

1. Institut neorganicheskoy khimii Sibirskogo otdeleniya AN SSSR,
Novosibirsk.

ZVYAGINTSEV, O.Ye., red.; PTITSYN, B.V., red.; SHUL'MAN, V.M.,
red.; PESHCHEVITSKIY, B.I., red.; ZAYTSEVA, I.P., red.;
OVCHINNIKOVA, T.K., tekhn. red.

[Problems in the analysis of noble metals; proceedings of
the Fifth All-Union Conference on the Analysis of Noble
Metals] Voprosy analiza blagorodnykh metallov; trudy Vse-
soiuznogo soveshchaniia po analizu blagorodnykh metallov.
5th. Novosibirsk, Izd-vo Sibirskogo otd-niia AN SSSR,
(MIRA 17:4)
1963. 100 p.

1. Vsesoyuznoye soveshchaniye po analizu blagorodnykh me-
tallov. 5th.

PTITSYN, B.V.; SHERONOV, L.N.

Method for determining the relative stability of complex compounds.
Izv. SO AN SSSR no.3 Ser. khim. nauk no.1:3-8 '63. (MIRA 16:8)

1. Institut neorganicheskoy khimii Sibirskogo otdeleniya AN SSSR,
Novosibirsk.
(Complex compounds)

BELYAYEV, A.V.; PTITSYN, B.V. [deceased]

Effect of bivalent mercury on K_3RhCl_6 aquation reaction.

Zhur. ob. khim. 35 no. 12: 2124-2127 D '65.

(MIRA 19:1)

1. Institut neorganicheskoy khimii Sibirskogo otdeleniya AN
SSSR. Submitted November 10, 1964.

PTITSYN, B.V. [deceased]; VINOGRADOVA, L.I.; MAKSIMYUK, Ye.A.

Use of silver oxalate electrode for determining the instability
constants of an iron oxalate complex. Zhur.neorg.khim. 10 no.8
1929-1930 Ag '65. (MIRA 19sl)

1. 1-y Leningradskiy meditsinskiy institut imeni I.P.Pavlova,
kafedra neorganicheskoy khimii, i Institut neorganicheskoy khimii
Sibirskogo otdeleniya AN SSSR.

CHERNYAYEV, I.I.; ZEMSKOV, S.V.; PTITSYN, B.V. [deceased]

Oxidation-reduction properties of nitrite complexes of platinum.
Zhur.neorg.khim. 10 no.11:2404-2410 N '65.

(MIRA 18:12)

1. Institut neorganicheskoy khimii Sibirskogo otdeleniya AN SSSR.
Submitted May 5, 1964.

PTITSYN, B.V. [deceased]; VINOGRADOVA, L.I.; MAKSIMYUK, Ye.A.

Oxidation of Cr³⁺ and Fe³⁺ complex oxalates by potassium
permanganates. Zhur.neorg.khim. 10 no.11:2493-2495 N '65.
(MIRA 18:12)

1. Submitted April 11, 1964.

PTITSYN, B.V. [deceased]; VINOGRADOVA, L.I.; MAKSIMYUK, Ye.A.

Potentiometric titration of complex ions with ammonium vanadate.
Zhur.neorg.khim. 10 no.11:2496-2498 N '65.

(MIRA 18:12)

I. Kafedra neorganicheskoy khimii I Leningradskogo meditsinskogo
instituta imeni I.P.Pavlova i Institut neorganicheskoy khimii
Sibirskogo otdeleniya AN SSSR. Submitted April 11, 1964.

PTITSYN, D., inzh.; MAL'TSEV, V., inzh.

The TO-1 automatically controlled continuous maintenance
line. Avt.transp. 38 no.7:24-25 J1 '60. (MIRA 13:7)
(Motor vehicles--Maintenance and repair)

Ptitsyn, G.

PHASE I BOOK EXPLOITATION 405

Ptitsyn, Gennadiy Anatol'yevich and Kokichev, Valentin Nikolayevich

Zuboreznyye stanki; spravochnoye posobiye (Gear-cutting Machines; a Handbook) 2d ed., enl. and rev. Moscow, Mashgiz, 1957. 448 p. 22,000 copies printed.

Reviewer: Fedotenok, A.A., Candidate of Technical Sciences, Docent; Ed.: Shavlyuga, N.I., Candidate of Technical Sciences, Docent; Ed. of Publishing House: Borodulina, I.A. Tech. Ed.: Speranskaya, O.V.; Managing Ed. of Mashgiz, Leningrad Branch: Bol'shakov, S.A.

PURPOSE: The book is intended for technologists working in the field of gear-cutting, as well as for foremen and set-up men for gear-cutting machines. The book is recommended as a textbook for technical schools.

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Gear-cutting Machines; a Handbook

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COVERAGE: This textbook describes methods and formulas for setting-up of gear-cutting machines. Dimensions necessary for the design of accessories, standard designs of mounting attachments and mandrels, as well as basic data for the selection of gear-cutting tools are given. The publication of the first edition of this textbook on gear-cutting tools indicated that such a book is indispensable to technologists and foremen employed in the field of gear-cutting as well as to designers planning jigs and fixtures of gear-cutting machine tools. This book found wide application in plants and planning organizations. In revising the material for the second edition, the authors preserved its basic contents and character of presentation. Only outdated material was excluded and the remaining material was reviewed and corrected. Separate chapters were enlarged to include: data on new models of foreign and domestic gear-cutting machines; extent of technological precision of machine tools for cutting spiral bevel gears using the "single cutter" method; data on adjusting machine tools for gear hobbing; recommendations on the

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Gear-cutting Machines; a Handbook**405**

selection of cutting speeds; requirements which precision gear-cutting machines should incorporate in accordance with latest data on foreign techniques, etc. There are 18 Soviet references. No personalities are mentioned.

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Use of the effect of positive surface ionization in studying the
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1. Vsesoyuznyy nauchno-issledovatel'skiy institut minokristallov,
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Khar'kov.

L 62228-65

EPF(n)-2/EWP(z)/EWT(m)/EWP(t)/EWP(b) IJP(c) MJW/CL/JD/HV/JG

ACCESSION NR: AP5020740

UR/0057/65/035/008/1493/1500

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AUTHOR: Chaykovskiy, E.F.; Pyatigorskii, G.M.; Ptitsyn, G.V.

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TITLE: Thresholds and optimum conditions for positive surface ionization

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 35, no. 8, 1965, 1493-1500

TOPIC TAGS: surface ionization, heat adsorption, positive ionization, emission threshold, alkali metal, tungsten, nickel, platinum, molybdenum

27

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ABSTRACT: The theory of surface ionization is discussed and a method is devised for deriving the heat of adsorption of the ion from the envelope of the family of surface ionization curves (ion current versus surface temperature for constant incident atom flux) obtained by varying the incident atom flux. This method is applicable regardless of whether the ionization potential is greater or less than the work function. It is suggested that the point at which the ionization curve is tangent to the envelope be regarded as the threshold point. Experimental surface ionization curves were obtained for K on W, Ni, and Pt, for Rb on W and Ni, for Cs on Mo, and for Na on Pt with an apparatus that has been described elsewhere by two of the authors (ZHTF 35, 1158, 1965). The emitter and collector were oriented polycrystalline strips separated by approximately 0.35 mm. The W and Mo surfaces

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ACCESSION NR: AP5020740

6
consisted mainly of (100) faces, and the Ni and Pt surfaces of (111) faces. The alkali metal vapor pressure was varied from 10^{-6} to 10^{-3} mm Hg; this caused a shift of 350 to 450° in the threshold temperature. The experimental data were processed by the method developed in the first part of the paper, and the following values for the heat of adsorption of the ions were found: for K on W, Ni, and Pt - 2.3, 2.4, and 2.6 eV, respectively; for Rb on W and Ni - 1.8 and 2.1 eV, for Cs on Mo - 1.9 eV; and for Na on Pt - 3.1 eV. The probable error in each case was 0.1 eV. These findings are in satisfactory agreement with data in the literature, although the latter were obtained with unoriented polycrystalline emitters. It is suggested that this agreement may be due to the predominance of the electrostatic image force in determining the heat of adsorption. "In conclusion, the authors consider it their pleasant duty to express their gratitude to Doctor of Physico-mathematical Sciences Professor N.I.Ionov and to Doctor of Physico-mathematical Sciences E.Ya.Zandberg [55] for very valuable suggestions." Orig. art. has: 36 formulas and 1 figure. [15]

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut monokristallov,
Khar'kov (All-Union Scientific Research Institute of Single Crystals)

SUBMITTED: 21Nov64

ENCL: 00

SUB CODE: EM, NP

NO REF SOV: 011

OTHER: 004

ATD PRESS: 5076

Card 2/2

L 54752-65 EWT(1)/EPA(s)-2/EWT(m)/EPF(c)/EPF(n)-2/EPA(w)-2/T/ENP(t)/EWP(z)/EWP(b)/
EWA(m)-2 Pab-10/Pr-4/Pad/Pt-7/Pu-4 LJP(s) JD/WW/HW/JG
ACCESSION NR: AP5015639 UR/0057/65/035/006/1132/1138

AUTHOR: Chaykovskiy, E.F.; Pyatigorskiy, G.M.; Ptitsyn, G.V.

TITLE: Temperature hysteresis of positive surface ionization and the
work function of a uniform emitter

SOURCE: Zhurnal tekhnicheskoy fiziki, v.35, no.6, 1965, 1132-1138

TOPIC TAGS: surface ionization, alkali metal, hysteresis, work func-
tion, platinum, molybdenum, nickel, rubidium, potassium, cesium

ABSTRACT: The authors calculate the critical threshold temperature T_c above which hysteresis of the threshold temperature for positive surface ionization on a uniform emitter does not occur. By using the known linear dependences of the ionic heat of adsorption and the emitter work function on the degree of surface coverage when the coverage is small, they obtain the relation $e(F - V)/kT_c = 2 + \log(g_a/g_i)$, where F is the work function, V is the ionization potential, and g_a and g_i are the statistical weights of the electron in the atom and ion, respectively. Corrections to this formula were calculated with

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ACCESSION NR: AP5015639

the nonlocalized adsorption model of E.F.Chaykovskiy and G.M.Pyatigorskiy (DAN SSSR 153, 401, 1963) and the localized adsorption model of V.M.Gavrilyuk (Ukr.fiz.zh.4, 734, 1959; Kinetika i kataliz 2, №.4, 497, 1961) and found to be small (the calculations with the nonlocalized adsorption model are given). It is proposed that the correction be evaluated empirically for a given adsorption mechanism by employing an emitter with a known work function and that the empirical correction be used to derive the work functions of other emitters from surface ionization threshold hysteresis measurements. Surface ionization threshold temperature hysteresis measurements were made with Rb on W, Rb on Ni, K on Pt and Cs on Mo by the vapor method of E.Ya. Zandberg and N.I.Ionov (UFN 67, №.4, 581, 1959) using equipment that has been described elsewhere (E.F.Chaykovskiy, Yu.B.Skrynnik and G.M. Pyatigorskiy, PTE, 1965). The 14 x 4 x 0.1 mm electrodes were made of well-oriented foil and were mounted with a 0.4 mm gap between them. Both electrodes were made of the same metal to avoid contamination of the emitter by sputtering. The surface ionization current was measured as a function of temperature (with both increasing and decreasing temperatures) for different values of the alkali metal vapor

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ACCESSION NR: AP5015639

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pressure. The threshold temperature at that vapor pressure above which threshold temperature hysteresis no longer occurs was determined by graphical interpolation. The data for Rb on W were used to obtain the correction term, and this correction was employed to derive the work functions of the other emitters from the remaining data. The work functions for the (111) face of Ni, the (111) face of Pt and the (100) face of Mo were thus found to be 4.57, 4.82 and 4.26 eV, respectively. The limit of error of these work functions is estimated to be 0.05 eV. "In conclusion, the authors consider it their pleasant duty to express their gratitude to Professor N.I.Ionov, Doctor of Physico-mathematical Sciences, and E.Ya.Zandberg, Doctor of Physico-mathematical Sciences, for very valuable discussions." Orig. art.has: 19 formulas and 3 figures.

Card 3/4

L-54752-65

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ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut monokristallov, Khar'kov (All-Union Scientific Research Institute for Single Crystals)

SUBMITTED: 22Aug64

NR REF Sov: Oll

ENCL: 00

SUB CODE: EM, EC

OTHER: 005

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Card 4/4

L 54770-65 EWT(1)/EPF(c)/EPA(m)-2/T/EWA(m)-2
ACCESSION NR: AP5015645

Pab-10/Pr-4 IJP(c)
Uf/0057/65/035/006/1158/1159

37
34
3

AUTHOR: Chaykovskiy, E.F.; Ptitsyn, G.V.

TITLE: Positive surface ionization of sodium on oriented platinum
strips

SOURCE: Zhurnal tekhnicheskoy fiziki, v.35, no.6, 1965, 1158-1159

TOPIC TAGS: surface ionization, work function, platinum, sodium

ABSTRACT: The authors have previously investigated the surface ionization of K on oriented Pt strips and obtained the value 4.7 ± 0.2 eV for the work function of the (111) face of Pt (ZhTF 35, No.3, 1965). In the present paper they report results of similar measurements with the same apparatus of the surface ionization of Na on Pt. The measurements were undertaken to provide data for a case in which the ionization potential exceeds the work function. The measurements were made by the vapor method with $0.4 \times 1.2 \times 0.01$ cm Pt electrodes separated by an 0.04 cm gap in a vacuum of 10^{-6} mm Hg. The elec-

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ACCESSION NR: AP5015645

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trodes were cleaned by prolonged heating at 1800°K, and x-ray investigations showed the surface to consist of outcroppings of (111) planes. The temperature dependence of the ion current was determined for Na vapor pressures from 2×10^{-5} to 6×10^{-3} mm Hg and from these data the value of 4.77 ± 0.07 eV was derived for the work function of the (111) face of Pt. This result is in good agreement with the value obtained similarly from measurements with K (cited above) and with that obtained by the authors (ZhTF 35, 1122, 1965) from measurements of the temperature above which surface ionization threshold temperature hysteresis does not occur. The small scattering of the experimental points showed that the contrast of the investigated platinum surface was low. "In conclusion, the authors consider it their pleasant duty to express their gratitude to Professor N.I.Ionov, Doctor of Physics-mathematical Sciences, and E.Ya.Zandberg, Doctor of Physico-mathematical Sciences, for very valuable discussions." Orig.art.has: 1 figure.

Card 2/3

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ACCESSION NR: AP5015645

ASSOCIATION: Vsesoyuznyj nauchno-issledovatel'skiy institut mono-kristallov, Khar'kov (All-Union Scientific Research Institute for Single Crystals)

SUBMITTED: 21Nov64

NR REF Sov: 004

ENCL: C0

SUB CODE: EM, IC

OTHER: C01

Card 3/3 M3.

PTITSYN, G.V.

Transient processes in traction motors with mixed excitation and
starting in stages. Trudy MEI no.29:114-125 '57.

(MIRA 13:3)

(Electric motors, Direct current) (Transients (Electricity))

MINOV, Dmitriy Konstantinovich; SHTERTSER, O.N., kand.tekhn.nauk, dotsent;
retsenzent; KOSAREV, G.V., kand.tekhn.nauk, dotsent, retsenzent;
PTITSYN, G.V., red.; BORUNOV, N.I., tekhn.red.

[Mechanical aspects of electric rolling stock] Mekhanicheskaya ,
chast' elektricheskogo podvizhnogo sostava; ustroistvo, teoriia,
proektirovanie. Moskva, Gos.energ.izd-vo, 1959. 381 p.
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1. Leningradskiy politekhnicheskiy institut (for Shtertser).
2. Moskovskiy energeticheskiy institut im. Molotova (for Kosarev).
(Electric railroads--Rolling stock) (Streetcars)
(Trolleybuses)

PTITSYN, G. V. Doc Cand Tech Sci -- (diss) "Automatic system
of control for streetcars with ~~single~~ compound ^{motors,} ~~excitation~~
Mos, 1957. 20 pp 20 cm. (Min of Higher Education USSR. Moscow
Order of Lenin Power Inst im v.M. Molotov), 100 copies
(KL, 21-57, 103)

-67-

PTITSYN, I.E.

Silver water and its use in pharmacy. Sov.zdrav.Kir. no.1:53-
55 Ja-F '63. (MIRA 16:3)

1. Iz apteki No.58, Sokulukskiy rayon Kirgiaskoy SSR.
(SILVER—THERAPEUTIC USE)

L 39549-66 EWT(d) GD/JXT(CZ)

ACC NR: AT6008686

SOURCE CODE: UR/3063/64/020/002/0040/0047

AUTHOR: Bartenev, L. S. (Engineer); Glebovich, G. V. (Candidate of technical sciences); Ptitsyn, K. N. (Engineer)

ORG: none*

9
B11

TITLE: Peculiarities in the development of a superhigh-speed oscilloscope

10

SOURCE: *Gorkiy. Politekhnicheskiy institut. Trudy, v. 20, no. 2, 1964.
Radiotekhnika, elektronika i energetika (Radio engineering, electronics and power engineering), 40-47

TOPIC TAGS: oscilloscope, electron beam oscilloscope, superhighspeed oscilloscope

ABSTRACT: The following difficulties were encountered in developing an electron-tube oscilloscope with a direct beam-sweep time of 4-5 nsec: (1) The

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ACC NR: AT6008686

nearest-to-linear midsegment of a steep voltage pulse (obtained from a nonlinear ferrite system) had to be used for sweep-voltage shaping (1 nsec, 500 v); (2) A diaphragm connected to the second anode had to be mounted behind the deflecting system; its window was so proportioned that the beam passed it only within the screen size, thus eliminating the undesirable stray lighting of the screen; (3) Test impulse distortion was minimized by using RK-3, RK-6, or RK-50-11-13-type Soviet-made cable and TW or coaxial deflecting system; (4) For calibrating the pulse duration, a telescopic coaxial delay line is recommended. The minimum distortion-permissible duration of the test impulse can be determined from: $\Delta t_o \geq 100 \Delta t/a$, where Δt is the combined delay caused by the tube and cable and "a" is the specified percentage error of reproduction. The stability of the oscilloscope operation largely depends on the stability of bias voltage on the slave stages. A laboratory hookup (oscilloscopes and circuit diagram shown) permitted recording 10^{-10} -sec processes. Orig. art. has: 3 figures and 10 formulas.

SUB CODE: 09 / SUBM DATE: none / ORIG REF: 006

Card 2/2 11b

KAZITSYNA, L.A.; KUPLETSKAYA, N.B.; PTITSYNA, V.A.; REUTOV, O.A.

Double diazonium salts of monovalent copper. Izv.AN SSSR.Otd.
khim.nauk no.3:562-563 Mr '63. (MIRA 16:4)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova.
(Diazonium compounds) (Copper salts)

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1949. Eye Department, Ryazhan' Oblast Clinical
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Bibliogr: 8 Nazv.

SO: Letopis'nykh Statey, Vol. 45, Moskva, 1949

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"Re Case of a Disease of the Hecklinghausen
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Dept., Ryazan Oblast Clinical Hosp. imeni
Senashko, -c1948-.

FEDOROV, B. P.; PTITSINA, N. V.

Anthracene Derivatives

Investigation of anthracene derivatives. 10. Relative activity of mesocarbonic atoms of anthracene and of 9, 10-dichloroanthracene in reactions with oxidizing agents. B. P. Fedorov, N. V. Ptitsina. Izv. AN SSSR. Otd. khim nauk, No.1, 1952.

Monthly List of Russian Accessions, Library of Congress, September 1952. UNCLASSIFIED.

FEDOROV, B.P.; PTITSINA, N.V.

Anthracene derivatives. I. Relative activity of α -carbon atoms of anthracene and 9,10-dichloroanthracene in reactions with oxidizing agents. Bull. Acad. Sci. U.S.S.R., Div. Chem. Sci. '52, 135-47
[Engl. translation].
(CA 47 no.19:9950 '53)

PT TSYN B.

U S S R

Determination of dissociation constants of individual complexes by the method of shifting the equilibrium. J. Piltsov and L. I. Vinogradova, Zhur. Obshchei Khimii, 25, 201-4 (1955) 217-20 (1955); J. Gen. Chem. (U.S.S.R.) 25, 201-4 (1955) (Engl. translation).—Consists of successive steps of dissociation of acid-base complexes were determined through the displacement of the equil. by reaction with various equivs. of ions (H^+ and Ag^+) that form insol. or undissoc. compds. Thus, if C moles of $[MA]^{x-}$ are mixed with xg -ions of Ag^+ to react thus: $[MA]^{x-} + xAg^+ + xH_2O \rightleftharpoons [MA(H_2O)_x]^{(x-1)} + xAgA \downarrow$ (where A is the anion and $x = 1$ to 6), then $K_x = (xC - [Ag^+])K_{AA}/[Ag^+]^{x+1}$, where K_{AA} is the solv. product of the ppt. Malcolm M. Anderson

Ptitsyn B.V.

USSR/Inorganic Chemistry - Complex Compounds

C.

Abs Jour : Referat Zhur - Khimiya, No 2, 1957, 4100

Author : Vinogradova, L.I., Ptitsyn B.V.Title : Determination of Instability Constants of Trioxalato-
ferriate of Potassium by the Method of Displaced
Equilibrium

Orig Pub : Zh. neorgan. khimii, 1956, 1, No 3, 427-431

Abstract : Determination of instability constants (K) of trioxala-
toferriate of potassium (I) is based on utilization of
the previously described method (RZhKhim, 1955, 45708)
of study of the equilibrium of the complex under inves-
tigation with ions that displace the equilibrium of se-
condary dissociation of complex particle due to forma-
tion of little soluble or little dissociated compounds.
To study the stability of I Ag^+ and H^+ are utilized as
such ions. Determined were the values of the thermody-
namic constants: $K_1 = 2.3 \cdot 10^{-5}$; $K(\text{total}) = 2.1$.

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PTITSYN ✓

USSR/Inorganic Chemistry - Complex Compounds

C.

Abs Jour : Referat Zhur - Khimiya, No 2, 1957, 4101

Author : Vinogradova, L.I., Ptitsyn, B.V.

Title : Determination of Instability Constants of Trioxalato-
ferriate of Potassium by Interaction of Iron Salt with
Silver Oxalate

Orig Pub : Zh. neorgan. khimii, 1956, 1, No 3, 432-437

Abstract : From comparison of stability constants (K) of ferri-
oxalate complexes determined on the basis of a study of
equilibrium of the system $\text{Fe}(\text{NO}_3)_3$ (I) - $\text{Ag}_2\text{C}_2\text{O}_4$ (II).

with the values of K determined by the method of displaced equilibrium (see preceding abstract), it follows
that as a result of interaction between I and II there
is formed predominantly the complex $[\text{Fe}(\text{C}_2\text{O}_4)_3]^{3-}$.

Average value of its total K at $25 \pm 0.1^\circ$ is $2.3 \cdot 10^{-20}$

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- 19 -

USSR/Inorganic Chemistry - Complex Compounds

c.

Abs Jour : Referat Zhur - Khimiya, No 2, 1957, 4101

The previously proposed dissociation scheme (Schaeffer H., Z. S. anorg. Chem., 1905, 45, 283), is thus rejected. However the new dissociation scheme is based on a not entirely correct assumption of an equality in concentration of the ions $\left[FeC_2O_4\right]^{2+}$ and $\left[Fe(C_2O_4)_2\right]^{2-}$. Therefore the above-stated values of K_2 and K_3 are approximate,

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PTITSYN, B.V.; PETROV, V.F.

The oxidation potential of dichromates. Zhur.ob.khim. 26
no.12:3233-3239 D '56. (MLRA 10:?)
(Dichromates) (Oxidizing agents)

GRINBERG, A.A.; NIKOL'SKAYA, L.Ye.; PETRZHAK, G.I.; PTITSYN, B.V.; FILINOV, F.M.
[deceased].

Use of rongalite for the production of difficultly soluble derivatives of tetravalent uranium. Zhur. anal. khim. 12 no.1:92-94 Ja-F '57.

(MLRA 10:4)

1. Radiyevyy institut AN SSSR, Leningrad.
(Uramyl compound) (Sodium formaldehydesulfoxylate)

GRINBERG, A.A.; PTITSYN, B.V.; FILINOV, F.M.; LAVRENT'YEV, V.N.

Preparation of uranium hexacarbonyl. Trudy Radiev.inst.AN SSSR
7:14-16 '56. (MLRA 10:5)
(Uranium organic compounds)

PTITSYN, B.V.

GRINBERG, A.A.; PTITSYN, B.V.; TEKSTER, Ye.N.

Physical and chemical properties of the aqueous solutions of complex
uranyl oxalates. Trudy Radiev.inst.AN SSSR 7:74-86 '56. (MLRA 10:5)
(Uranyl oxalates)

PTITSYN, B.V.

"Preparation of Weakly Soluble Compounds of Tetravalent Uranium With the Aid of Rongalite," by A. A. Grinberg, L. Ye. Nikol'skaya, G. I. Petrzhak, B. V. Ptitsyn, and F. M. Filinor (deceased), Radium Institute of the Academy of Sciences USSR, Leningrad, Zhurnal Analiticheskoy Khimii, Vol 12, No 1, Jan/Feb 57, pp 92-94

A method for the reduction of uranyl salts with rongalite is described. As compared with hydrosulfite, rongalite has the advantage that no sulfur is precipitated under the conditions investigated. Tetravalent uranium could be quantitatively isolated when the reduction was carried out in oxalic acid or hydrofluoric acid solutions. The optimum concentration conditions for the isolation of uranium as its oxalate have been established. (U)

54M.1360

VI NOGRADOVA, L.I.; PTITSYN, B.V.

Determination of instability constants for potassium
trioxalatoferrate by means of displaced equilibrium. Zhur.neorg.
khim. 1 no.3:427-431 Mr '56. (MLRA 9:10)

(Potassium oxalatoferrate (III))

VINOGRADOVA, L.I.; PTITSYN, B.V.

Determination of instability constants of potassium trioxalato-ferrate from the interaction of an iron salt with silver oxalate.
Zhur.neorg.khim. 1 no.3:432-437 Mr '56. (MLRA 9:10)

(Potassium oxalatoferate (III))

PTITSYN, B.V.

GRINBERG, A.A. (Leningrad); BARAYEVA, A.V. (Moscow); YATSIMIRSKIY, K.B. (Ivanovo); GOREMYKIN, V.I. (Moscow); BOLIY, G.B. (Moscow); FIAL-KOV, Ya.À. (Kiyev); YAKSHIN, M.M. (Moscow); FEDROV, B.M. (Moscow); GEL'MAN, A.D. (Moscow); FEDOROV, I.À. (Moscow); MAKSYMUK, Ye.À. (Leningrad); VOL'KENSHTEYN, M.V. (Leningrad); ZHDANOV, G.S. (Moscow); PTITSYN, B.V. (Leningrad); ABLOV, A.V. (Kishinev); VOLSHTEYN, L.M. (Dnepropetrovsk); TROITSKAYA, A.D. (Kazan'); KLOCHKO, M.A. (Moscow); BAEAYEVA, A.V.; TRONEV, V.G. (Moscow); RUBINSHTEYN, A.M. (Moscow); CHERNYAYEV, I.I.; GRINBERG, A.A.; TANANAYEV, I.V.

Explanation of the transeffect. Izv. Sekt. plat. i blag. met. no.28:
56-126 '54.

(Compounds, Complex) (Platinum)

PTITSYN B.V.

NIKOL'SKIY, B.P., redaktor; DOLGOV, B.N., redaktor; ZAL'KIND, Yu.S.
[deceased] redaktor; MORACHEVSKIY, Yu.V., redaktor; POZIN, M.Ye.,
redaktor; PTITSYN, B.V., redaktor; SMIRNOV, N.I., redaktor.

[The chemist's handbook] Spravochnik khimika. Vol. 3. [Chemical equilibrium and kinetics. Solutions. Electrochemistry. Analytical and technical chemistry] Khimicheskoe ravenovesie i kinetika. Rastvory. Elektrokhimiia. Analiticheskaya i tekhnicheskaya khimiia. Leningrad, Gos. nauchno-tekhn. izd-vo khim. lit-ry. 1952. 1190 p. [Microfilm]
(Chemistry--Handbooks, manuals, etc.) (MLRA 7:10)

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Sulphur

Influence of the oxidation and deoxidation potential on the process of oxidation
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"A Potentiometric Method of Dosage of Pt and De L'Ir Totaux,"

SO: Dok. AN, 51 No. 9, 1946. c1946-•

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"A Potentiometric Method of Dosage of Pt and De L' Ir
Totaux," Dok. AN, 51, No. 9, 1946. o-1946-

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"The Mechanism of the Reaction of Sodium Thiosulphate with Halogene-Iridates and on the Oxidation-Reduction Potentials of Halogene-Iridates," Zhur. Obshch. Khim., 15, No. 4-5 1945; Mbr., Lab. Inorganic Chemistry, Leningrad Chemico-Technological Inst., -1941--.

.PTITSYN, G. A.

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(Gear-cutting machines; reference handbook, by)
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